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Short communication

Factors associated with pterygium based on history and clinical examination of patients in Pakistan

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Abstract

Purpose: The purpose of this study was to determine the factors associated with Pterygium, utilizing history and examination.
Methods: In this prospective case series study, a total of 1227 patients with Pterygium presenting at the Department of Ophthalmology, Chandka Medical College Hospital Larkana, Pakistan, from January 1997 to January 2015 were included. A standard proforma containing proposed risk factors was filled in for every patient. Clinical examination was performed on slit-lamp biomicroscope to confirm presence of pterygium.
Results: Out of the total 1227 patients, 656 (53.46%) were males, and 571 (46.54%) were females. Mean age ± standard deviation was 53.12 years ± 15.85 years, and the age range was 20–79 years. 1063 (86.63%) patients belonged to areas with hot and dry weather, 421 (34.31%) patients had a positive family history for Pterygium, 740 (60.31%) patients had history of previous exposure to toxic chemicals, and 364 (29.67%) patients had dry eye.
Conclusion: This study points towards the simultaneous role of multiple risk factors including sun exposure, hot climate, toxic material exposure, familial transmission, and dry eye in association with pterygium.

Keywords: Pterygium; Family history; Hot; Dry; Climate

Introduction

Pterygium is a slow growing proliferation of wing shaped fibrovascular tissue arising from the conjunctiva,[1] subconjunctival connective tissue,[2] or from the limbal epithelial basal cells.[3] Prevalence of pterygium ranges from 0.7% to 31% in various studies around the world.[4] Pterygium can harbor malignancies like squamous cell carcinoma[5] or malignant melanoma[6] and may become threat to the very existence of the individual. Presently, it is believed that Pterygium most commonly affects the individuals who are exposed to the outdoor environment particularly in tropical and subtropical countries, therefore, exposure to dry, dusty, windy, and sunny weather is blamed to be the risk factor.[7] This study was conducted to determine factors associated with pterygium through observations in the history and clinical examination of patients with diagnosed Pterygium in the Department of Ophthalmology, Chandka Medical College Hospital Larkana, Pakistan.

Methods

In this prospective case series study, a total of 1227 patients with Pterygium presenting at the Department of Ophthalmology, Chandka Medical College Hospital Larkana, Pakistan, from January 1997 to January 2015 were included after ethical approval. Patients below 20 years of age, with recurrent Pterygia and Pterygia harboring cysts or malignancies like squamous cell carcinoma and malignant melanoma were excluded from the

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study. A standard proforma was filled in for every patient. It included age, sex, family history of Pterygium, environing atmospheric conditions (dry or humid weather), toxic chemical (e.g. fertilizers, insecticides, and pesticides) exposure, and tear film break up time for initial evidence of dry eye (when present, Schirmer's test was performed). Presence of Pterygium in first degree relatives was considered as positive family history. Clinical examination was performed on slit-lamp biomicroscope to confirm presence of pterygium, and diagnosis of pterygium was confirmed by one specific senior faculty member to standardize the results. Data was entered and analyzed in SPSS version 20.

Results

Out of total 1227 cases of Pterygium, 656 (53.46%) were males, and 571 (46.54%) were females. Mean age ± standard deviation was 53.12 years ± 15.85 years, and the age range was 20–79 years. Most of the patients (31.13%) were in the 61–70 years age group, followed by 41–50 years age group, with 28.93% cases. Inhabitants of the hot and dry weather areas were 86.63% (1063), and 13.37% (164) of patients were from humid or cold areas. Positive family history for Pterygium was present in 421 (34.31%) patients. History of previous exposure to toxic chemicals (e.g. fertilizers, insecticides, and pesticides) was present in 740 (60.31%) patients, and 364 (29.67%) patients had dry eye (Table 1).

Table 1
Frequency of risk factors in 1227 patients with Pterygium.

Risk factors	Subheading	No. of patients (n = 1227)	Percentage
Age			
	20–30 years	121	9.86
	31–40 years	132	10.76
	41–50 years	355	28.93
	51–60 years	72	5.87
	61–70 years	382	31.13
	71–79 years	165	13.45
Gender			
	Male	656	53.46
	Female	571	46.54
Atmospheric conditions			
	Hot and Dry Weather	1063	86.63
	Humid or Cold Weather	164	13.37
Family history			
	Positive	421	34.31
Exposure to toxic chemicals[a]			
	Positive	740	60.31
Dry eye			
	Positive	364	29.67

[a] fertilizers, insecticides, and pesticides.

Discussion

Pterygium was found to be more common (53.46%) in males than females in our study, which is consistent with the study reported by Salagar et al.[8] In our study, Pterygium was more common in the 61–70 year age group (31.13%), which is unlike the 30–40 year age group as reported by Rajiv et al.[9] Patients in our study living in hot and dry weather were 86.63%, which is similar to the findings reported by Mackenzie et al.[7] Positive family history for Pterygium was found in 34.31% of patients, which resembles the study reported by Islam SI et al.[10] Patients with history of previous exposure to toxic chemicals and other irritating substances were 60.31%, which is similar to the study reported by Kwon JS et al.[11] Patients with dry eye were 29.67%, resembling the study reported by Rajiv et al.[9] Etiology of Pterygium has given rise to much discussion, and many causes have been proposed through passing times like inflammatory,[10] degenerative,[12] neoplastic[13] and genetic.[10] Most of the ophthalmologists believe that exposure to sunny, hot, dry, and dusty climates[7] somehow causes Pterygium, and some others add exposure to ultraviolet light[14,15] as a significant risk factor. However, our observations point towards presence of multiple associations simultaneously in most of the patients, and this overlap of associations indicates several factors operating together to cause pterygium, not a single factor. Our study has several strong limitations and does not confirm any association. More studies are required on this subject.

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